

The flowchart illustrates the system architecture for a game analysis system, showing the flow of data and processing steps. The components and their interactions are as follows:

- Input (100):** TELEPHONE INPUT (could be the same unit as 190). It provides VOICE and TEXT input to the INPUT INTERPRETATION module (105).
- Input Interpretation (105):** Processes the input and sends data to the RAW GAME RECORDING database (110).
- Raw Game Recording (110):** Stores the recorded game data and sends it to the INPUT PARSING module (115).
- Input Parsing (115):** Parses the input and sends data to the ERROR CORRECTION module (120).
- Error Correction (120):** Corrects errors and sends data to the GAME TRANSACTIONS database (125).
- Game Transactions (125):** Stores game transaction data and sends it to the STATISTICAL ANALYSIS module (130).
- Statistical Analysis (130):** Performs statistical analysis and sends data to the GAMES STATISTICS database (135).
- Games Statistics (135):** Stores game statistics and sends data to the UPDATE GROUP OF PLAYER'S AVERAGES module (140).
- Update Group of Player's Averages (140):** Updates player averages and sends data to the GROUP OF PLAYERS AVERAGES database (145).
- Group of Players Averages (145):** Stores player averages and sends data to the TELEPHONE module (190) and the REQUEST FOR INFORMATION PROCESSING module (180).
- Telephone (190):** A communication module that interacts with the input and the request for information processing.
- Request for Information Processing (180):** Processes requests and sends data to the SPEECH GENERATION module (175) and the TEXT AND GRAPHICS GENERATION module (185).
- Speech Generation (175):** Generates speech output and sends it to the TELEPHONE module (190).
- Text and Graphics Generation (185):** Generates text and graphics output and sends it to the EMAIL, SMS, FAX, INSTANT MESSAGING ETC module (196).
- Matches Analysis Repository (170):** Stores match analysis data and sends it to the REQUEST FOR INFORMATION PROCESSING module (180).
- Comparisons with Group Averages (155):** Compares game data with group averages.
- Patterns Detection (150):** Detects patterns in game data.
- Improvement Recommendations (165):** Provides improvement recommendations.
- Strategy Recommendations (160):** Provides strategy recommendations.

The flowchart shows a complex network of data flow between these modules and databases, with some components (155, 150, 165, 160) grouped together in a dashed box, indicating a related set of functions.

Fig. 1

(200) Strok typ (and impli d location on court)	
Play r n th l ft	Play r on th right
1 FH Ground Stroke	3 FH Ground Stroke
4 FH Volley	6 FH Volley
44 FH Overhead and Serve	66 FH Overhead and Serve
11 FH Approach	33 FH Approach
7 BH Ground Stroke	9 BH Ground Stroke
* BH Volley	# BH Volley
** BH Overhead	## BH Overhead
77 BH Approach	99 BH Approach
(210) Stroke placement	
2 Cross Court; opt. - default	(220) Stroke error
5 <i>Middle</i>	020(0) Wide
8 Down the Line	050(0) Net
0 <i>Inside Out</i>	080(0) Long
	0852(0) Mis-hit
(230) Stroke Trajectory	
22 Drop shot	optional (0) indicates forced error
55 Lob	(240)
88 Passing shot	858 Stroke winner
(250) Corrections	
15551 Let	
35553 Point played over	
052 Back over last entry	
0525 Back over last shot entry; Can be repeated up to the previous point entries	
0528 Ignore all shots in the point up to the serve in; Entry errors.	
0520 Ignore all shots in the point; Entry errors.	
(260) Miscellaneous	
2580 Players switch sides or use player 1 on left, etc. notation (only after concluding entry)	
252 Missed some strokes.	
2255 Missed part of the match, enter complete match score from where recording picks up	
123 Start of a tiebreak	
13 Lplayer - serve is from deuce court	
79 Lplayer serve is from ad court	
31 Rplayer - serve is from deuce court	
97 Rplayer serve is from ad court	
(270) Concluding Entries	
**** Point over; Player on the left won. (Optionally followed by Game Score entry)	
#### Point over; Player on the right won. (Optionally followed by Game Score entry)	
7777 Game over. Player on the left won;	
9999 Game over Player on the right won.	
4444 Set over. Player on the left won	
6666 Set over, Player on the right won.	
1111 Match over; Player on the left won. enter complete score	
3333 Match over; Player on the right won. enter complete score	
#963 Match stopped or postponed	

Fig. 2

Fig. 3

LPLAYERSTROKE : ('PLAYER 1' 'P 1') (?) PLAYERSTROKE	LPLAYERSERVE : ('PLAYER 1' 'P 1') (?) SERVE
RPLAYERSTROKE : ('PLAYER 2' 'P 2') (?) PLAYERSTROKE	RPLAYERSERVE : ('PLAYER 2' 'P 2') (?) SERVE
PLAYERSTROKE : (FORB ('GROUND' 'BASE' 'BASELINE') (?) FORB (?) 'VOLLEY' FORB (?) 'OVERHEAD' FORB (?) 'APPROACH'	SERVE : 'SERVE' ('FROM' (?) ('AD' 'DEUCE') 'SIDE' (?)) (?)
FORB : FOREHAND BACKHAND	LET : 'LET'
FOREHAND : 'FOREHAND' 'FORE'	POINTPLAYEDOVER : 'POINT' (?) 'PLAYED OVER'
BACKHAND : 'BACKHAND' 'BACK'	SHOTWINNER : 'SHOT' (?) 'WINNER'
ERRORTYPE : ('ERROR' 'OUT') (?) ('WIDE' 'NET' 'LONG' 'MIS-HIT')	MATCHOVER: 'MATCH OVER' ('PLAYER' ('1' '2') 'WON') (?)
FORCEDERROR : 'FORCED'	SETOVER: 'SET OVER' ('PLAYER' ('1' '2') 'WON') (?)
STROKEPLACEMENT : 'CROSS' 'COURT' (?) 'MIDDLE' 'DOWN' (?) 'THE' (?) 'LINE' 'INSIDE OUT'	GAMEOVER: 'GAME OVER' ('PLAYER' ('1' '2') 'WON') (?)
STROKETRAJECTORY : 'DROP SHOT' 'LOB' 'PASSING SHOT'	POINTOVER : 'POINT OVER' ('PLAYER' ('1' '2') 'WON') (?)

Fig. 4

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LPLAYERSTROKE :  
  '44' | '11' | '1' | '4' |  
  '**' | '77' | '7' | '**'  
  
RPLAYERSTROKE :  
  '66' | '33' | '3' | '6' |  
  '##' | '99' | '9' | '#'  
  
ERRORTYPE :  
  '020' | '050' | '080' | '0852'  
  
FORCEDERROR :  
  '0'  
  
STROKEPLACEMENT :  
  '2' | '5' | '8' | '0'  
  
STROKETRAJECTORY :  
  '22' | '55' | '88'  
  
LPLAYERSERVE :  
  '44'  
  
RPLAYERSERVE :  
  '66'  
  
LET :  
  '15551'  
  
POINTPLAYEDOVER :  
  '35553'  
  
SHOTWINNER :  
  '858'  
  
MATCHOVER:  
  '1111' | '3333'  
  
SETOVER:  
  '4444' | '6666'  
  
GAMEOVER:  
  '7777' | '9999'  
  
POINTOVER :  
  '****' | '####'
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Fig. 5

MATCH INFO

610

PLAYERS	NAME	WINNER
PLAYER 1	JOHN DOE	
PLAYER 2	JOHN DOE JR	X

620

MATCH DATE AND TIME	JULY 24, 2003
MATCH DURATION	3 HOURS
TYPE OF RECORDING	ALL STROKES

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MATCH SCORE					
PLAYER	SET 1	SET 2	SET 3	SET 4	SET 5
PLAYER 1	6	3	3		
PLAYER 2	4	6	6		

MATCH STATISTICS FOR John Doe Jr.

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SUMMARY STATISTICS		
POINTS PLAYED	140	
POINTS WON	85	70%
WINNERS	10	7%
ERRORS	45	32%
UNFORCED ERRORS	35	25%
BREAK CHANCES	3/7	
BROKEN SERVICE GAMES	3	21%
FIRST SERVE CONSISTENCY	60%	
RETURN OF SERVE CONSISTENCY	70%	

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WINNERS AND ERRORS BY STROKE

	SERVE 1	SERVE 2	FH RETU RN	BH RETU RN	FH BASE LINE	BH BASE LINE	FH VOLL EY	BH VOLL EY	FH OVER HEAD	BH OVER HEAD	FH APPR OACH	BH APPRO ACH
WINNERS	2	0	1	0	1	1	1	0	2	0	2	0
ERRORS	42	10	4	6	4	9	1	3	1	2	1	4
BALANCE	-40	-10	-4	-6	-3	-8	0	-3	+1	-2	+1	-4

Fig. 6

Forehand ground stroke analysis

700

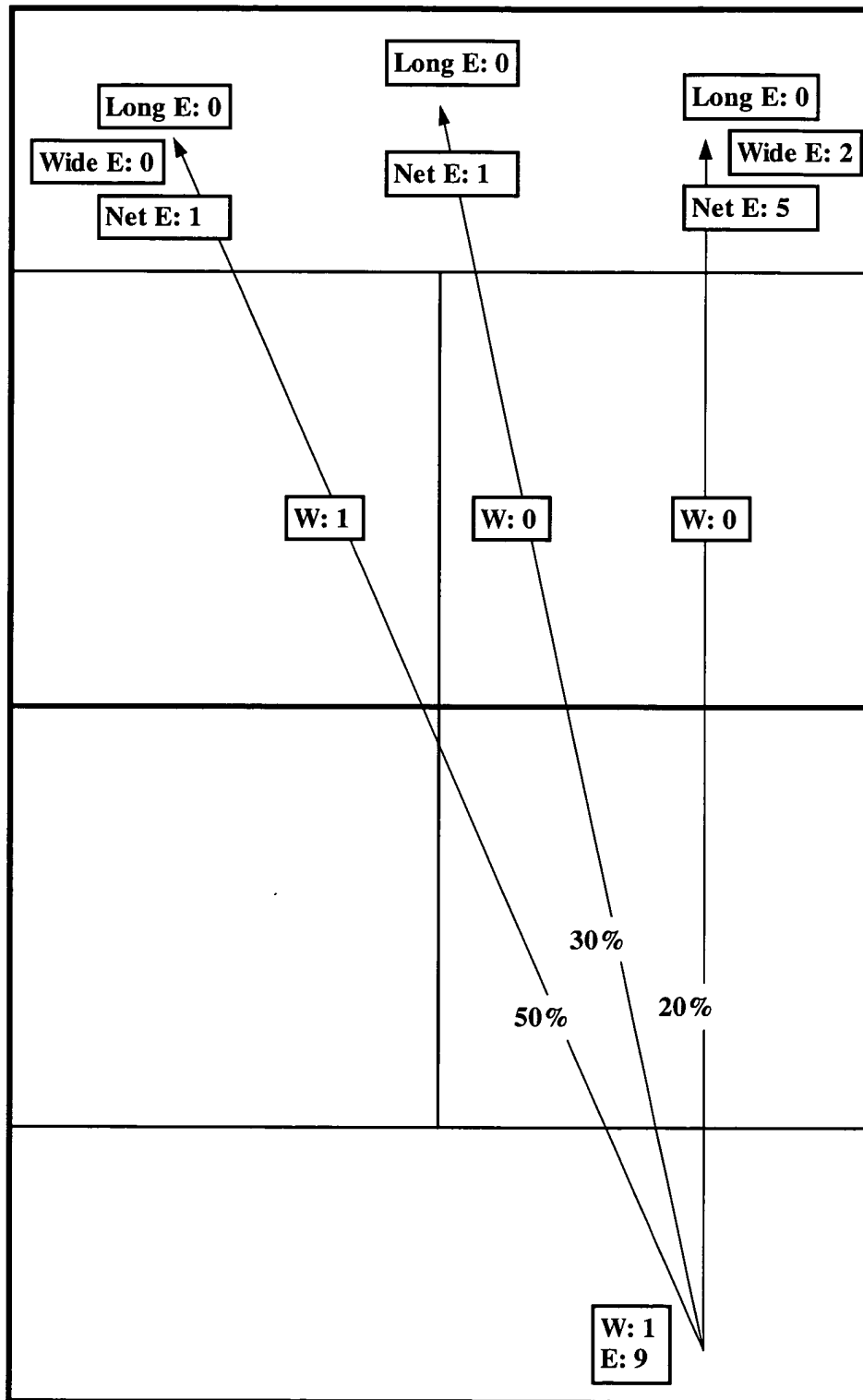


Fig. 7

810

PointInfo Table Schema

	Field	Type	Attributes	Null	Default
PK	<u>RedD</u>	int(10)	UNSIGNED	No	0
PK	<u>PointInMatch</u>	int(10)	UNSIGNED	No	
	PointInGame	int(10)	UNSIGNED	No	0
	PlayedOver	tinyint(1)	UNSIGNED	Yes	0
	WinningPlayerSide	enum('LP', 'RP')		Yes	NULL
	WinningPlayerRef	tinyint(1)	UNSIGNED	Yes	0
	WinnerOrError	tinyint(1)	UNSIGNED	Yes	0
	ServingPlayerRef	tinyint(1)		Yes	0
	FirstServeIn	tinyint(1)	UNSIGNED	Yes	0
	SecondServeIn	tinyint(1)	UNSIGNED	Yes	0
	LPlayerRef	tinyint(1)	UNSIGNED	Yes	0
	RPlayerRef	tinyint(1)	UNSIGNED	Yes	0
	LPEnteredScore	varchar(5)		Yes	
	RPEnteredScore	varchar(5)		Yes	
	LPRunningScore	varchar(5)		Yes	
	RPRunningScore	varchar(5)		Yes	
	CompleteRecording	tinyint(1)	UNSIGNED	Yes	0
	RecordingErrors	tinyint(1)	UNSIGNED	Yes	0

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StrokeInfo Table Schema

	Field	Type	Attributes	Null	Default
PK	<u>RedD</u>	int(10)	UNSIGNED	No	0
PK	<u>StrokeInMatch</u>	int(10)	UNSIGNED	No	
	PointInMatch	int(10)	UNSIGNED	No	0
	StrokeInPoint	int(10)	UNSIGNED	No	0
	PlayerRef	tinyint(1)	UNSIGNED	No	0
	StrokeType	enum('Serve1', 'Serve2', 'GroundStroke', 'Volley', 'Overhead', 'Approach')		No	Serve1
	FH	tinyint(1)	UNSIGNED	No	0
	StrokePlacement	enum('CrossCourt', 'Middle', 'DownTheLine', 'InsideOut')		Yes	NULL
	StrokeTrajectory	enum('DropShot', 'Lob', 'PassingShot')		Yes	NULL
	Let	tinyint(1)	UNSIGNED	Yes	0
	Winner	tinyint(1)	UNSIGNED	Yes	0
	ErrorType	enum('Wide', 'Net', 'Long', 'Mishit')		Yes	NULL
	ForcedError	tinyint(1)	UNSIGNED	Yes	0
	StartRedIndex	int(10)	UNSIGNED	No	0
	EndRedIndex	int(10)	UNSIGNED	No	0

Fig. 8

Survey Information

Error/Winner/Let
are mutually exclusive

Stroke information entries

1. If not given, unforced error is assumed
2. forced may be given only if error is given

Err Type may be given only if Error is given.

Concluding entries

Score entries

Prefix	Entry 1	Entry 2
	ad in	
score	ad out	
	deuce	
	0	0
	love	love
	15	15
	30	30
	40	40
	1-14	1-14
		dl

Fig. 9